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**PATENT APPLICATION**  
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Internet Print Device Font Distribution Method And Web Site

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1 INTERNET PRINT DEVICE FONT  
2 DISTRIBUTION METHOD AND WEB SITE

3 FIELD OF THE INVENTION

4 The present invention concerns print devices. Print device, as  
5 used herein, encompasses printers and other devices including a font based  
6 print function, e.g., multi-function peripherals. The invention is directed to a  
7 distribution method for print device fonts and a web site for print device font  
8 distribution.

9 BACKGROUND OF THE INVENTION

10 Print device fonts are important to users because a font is a  
11 primary component which defines the look of a document. A likely market

1 exists to distribute print device fonts, but users, to a large extent, continue to  
2 rely upon fonts bundled with a print device when purchased and software  
3 generated fonts which are temporarily downloaded to a print device during a  
4 print job. The former situation restricts font choice, while the latter is  
5 inefficient. Studies show that print device-installed fonts improve performance  
6 by up to twenty percent compared to temporarily downloaded print device  
7 fonts. Performance gains are especially prominent in complicated character  
8 sets, such as Asian character sets.

9           Three conventional methods largely define the state of the art for  
10 print device-installed font distribution. Print device manufacturers include a  
11 set of fonts in the print device ROM. Once bundled, such fonts are fixed and  
12 may become obsolete as operating system fonts change. In addition, users are  
13 often compelled to accept a set of unwanted fonts as a package with a print  
14 device. Additional font packages come in the form of plug-in accessories, e.g.,  
15 font cards. The plug-in accessory method of font distribution shares the same  
16 drawbacks as fixed ROM print fonts. Plug-in accessories also raise hardware  
17 compatibility issues and the distribution issues connected with a hardware  
18 product including, for example, slow distribution, prediction of demand,  
19 maintenance of inventories and installation support.

20           A third method of font distribution is generally referred to as a  
21 semi-permanent download. A user acquires fonts for the user's operating  
22 system. The user, using an external resource manager program, may then  
23 download selected fonts semi-permanently to storage on the print device  
24 independent of a particular print job. Once downloaded in this manner, the  
25 font appears to be permanent in that it remains available to multiple print jobs,  
26 but may be erased using the external resource manager. HP Resource Manager  
27 is an example of such a program. The fonts are loaded to a flash memory, a  
28 disk memory, RAM, or similar memory, and become available for use by  
29 subsequent print jobs. Installing the fonts is a complicated process, however,

1 requiring an installer to convert the font from its native format into a print  
2 device specific format, download it to the print device, and configure the driver  
3 or other software on the operating system to use the newly installed font. The  
4 program which downloads to the print device may be incompatible with certain  
5 fonts and formats. The fonts may also be incompatible with certain print  
6 devices.

## 7 SUMMARY OF THE INVENTION

8 The invention is directed to an Internet print device font  
9 distribution method and web site. Font users are visitors to a web site which  
10 allows browsing and obtaining of fonts, either individually or in groups.  
11 Visitors access the web site via conventional connections with a client  
12 computer and software. Preferably, purchases are made through the web site,  
13 but the method may allow installation of fonts through the web site as a result  
14 of other authorizations, e.g., an electronic coupon for visitors or a tie-in to other  
15 products, services, and web sites. Web site functions include operating system  
16 compatibility matching. The web site obtains configuration information to  
17 insure compatibility of a font to a visitor's configuration. Software on the web  
18 site downloads, installs and configures fonts on the visitor's print device.

19 In a preferred embodiment, a web storefront is a web site  
20 advertising fonts for sale. The site permits viewing, selection and authorized  
21 installation of fonts from a set of print device-ready fonts. A preferred form of  
22 authorized installation includes a purchase through the web site. Fonts  
23 available on the web site are pre-tested and matched to print device models of  
24 common manufacturers and operating configurations to insure that each font  
25 has a defined set of workable installations. The site accesses, and may display,  
26 a database of configuration and performance information for multiple print  
27 device products. Visitors may be informed of potential estimated performance  
28 gains resulting from the installation of selected fonts. Information about the

1 visitor's system configuration is obtained, e.g., operating system version, CPU  
2 type and speed, driver versions, print device models, and frequently used  
3 operating fonts. The site may obtain this information automatically by  
4 software which inspects the visitor system, it may obtain the information  
5 through having the visitor complete a form, or it may use a combination of  
6 manual and automatic information gathering. Automatic information gathering  
7 involves software that interacts with the client software/computer of a visitor to  
8 the web site. Purchased fonts are transferred to the visitor's system via  
9 interaction with the client software and computer. Software installs and  
10 configures the fonts onto the visitor's print device.

#### 11 BRIEF DESCRIPTION OF THE DRAWINGS

12 Other features, objects and advantages of the invention will be  
13 apparent to those skilled in the art by reference to the detailed description and  
14 the drawings, of which:

15 FIG. 1 is schematic representation of client-web host interactions  
16 conducted according to a font distribution and web site of the invention;

17 FIG. 2 illustrates a flow diagram for a preferred method of visitor  
18 interaction with a web site of the present invention; and

19 FIG. 3 illustrates a flow diagram from a preferred business  
20 method for the distribution of print device fonts through a web site according to  
21 the invention; and

22 FIG. 4 is a schematic representation of software components for  
23 implementing a preferred web site of the invention.

#### 24 DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

25 The invention provides a print device font distribution method in  
26 which fonts are distributed via the Internet. A novel business model for font  
27 distribution is thus provided, as well as a novel web site. The method and web

1 site of the invention may be provided by or with the cooperation of a print  
2 device manufacturer or by an independent font provider. Fonts may be  
3 distributed by the invention as a replacement or a supplement to the  
4 conventional methods for print device font installations. Print device  
5 manufacturers might choose to provide fewer pre-installed fonts and rely upon  
6 custom distribution via distribution according to the invention. Distribution by  
7 the invention also may form a potential new e-commerce model for print  
8 device font sales, with fonts being selected, purchased, and installed via a web  
9 site.

10 Aspects of conventional web site and e-commerce technology,  
11 ranging from the web site interface itself to database software relied upon by  
12 the web site, will be useful in practical embodiments of the invention.  
13 Additional conventional software useful to implementation of the invention  
14 might include, for example, web site financial transaction software and  
15 customer database software. The following description accordingly focuses on  
16 the novel functions of the print device font distribution method and web site of  
17 the invention. Many practical embodiments of the invention making use of  
18 conventional web site software will be apparent to artisans in light of the  
19 following description.

20 Referring now to FIG. 1, an exemplary computer system for  
21 implementation of the invention is shown. A client computer 10 includes, at  
22 least, a print application, a web browser, and a print device driver that controls  
23 print jobs to a print device 12. The client 10 and print device 12 might be  
24 stand-alone machines or part of a network with other computers and devices.  
25 Memory in the print device 12 typically includes a set of installed fonts  
26 available to a print application in the client computer 10. The web browser in  
27 the client computer 10 provides Internet access to a universe of web server  
28 computers, including a web host 16 configured according to the invention to  
29 implement a print device font distribution of the invention via a web site of the

1 invention hosted by the web host 16. Connections made by the client computer  
2 10 are generally represented in FIG. 1, and may include any form of networked  
3 or direct connection to the print device 12 and the web host 16.

4 Access to the print device font distribution web site hosted by the  
5 web host 16 may be initiated directly by a user of the client computer 10,  
6 automatically or semi-automatically as part of an initial installation or upgrade  
7 to the print device 12, or by software program in the client computer 10. The  
8 web site will guide and assist font selection and installation with an appropriate  
9 set of menus and graphical user interfaces. Such a web site is maintained to  
10 facilitate selection from a set of print device-ready fonts through the client  
11 computer 10.

12 Referring now to FIG. 2, a web site hosted by the web host 16 is  
13 visited 18 by a user of a client computer, and the user thereby becomes a visitor  
14 to the web site. This visit may be initiated by an number of actions which  
15 trigger a connection to access the web site via a web browser on the client  
16 computer 10 that addresses the web site on the web host 16. For example, but  
17 without being limited thereto, the web site might be accessed as part of a print  
18 device set-up program, in response to a link on another web site, in the flow of  
19 a print application in the client computer 10, or directly by a user of the client  
20 computer 10. Access to the web site might also be triggered by the print device  
21 12 itself in response, for example, to a request for a print job using an  
22 unavailable font. Any such form of access to the web site is treated as a visit to  
23 the web site, with the possibility of a client computer or print device being  
24 treated as a visitor to the web site. Separate web sites, or a web site accessible  
25 through use of multiple URL addresses, might be maintained on the web host  
26 16 and help determine how the web applications on the web host 16 will  
27 interact with the client -of a particular visitor to the web site.

28 Initial access to the web site might be responded to with none or  
29 any number of preliminary steps to confirm that a particular client computer or

1 user of the same wishes to view, shop, install or purchase any number of fonts.  
2 Once the main web site on the client computer 10 is then entered, software on  
3 the web host 16 obtains information concerning the print device system  
4 configuration of the client 10 and print device 12 of a visitor. First, software  
5 determines 20 whether an automatic analysis of the system configuration is  
6 possible. If so, software automatically determines 22 the printing system  
7 configuration. The information obtained by the step of automatically  
8 determining the printing system information might include information such as  
9 the operating system type and version, print device driver type, print device  
10 brand, print device model, CPU type, CPU speed, print device driver versions,  
11 frequently used operating fonts and any other information useful in ensuring  
12 that a selected font may be properly installed and utilized by the printing  
13 system configuration of the particular client 10 and print device 12.

14 The automatic determining of step 22 might be realized by  
15 launching software which obtains said information concerning a visitor's  
16 system automatically. The software could be software which inspects the  
17 system including client 10 and print device 12. Cookies may also be utilized  
18 for repeat visits by a particular client, and the cookie could include some or all  
19 of the necessary information for the step of automatically determining. In such  
20 case the automatic determining of step 22 would first obtain 23 information  
21 from a cookie stored on the client 10. Using the obtained print system  
22 configuration information, another application on the web host 16 can then  
23 analyze 24 font usage by the particular client 10 and print device 12 for  
24 performance. Such analysis can reveal whether currently used fonts are  
25 detrimental to performance and whether performance gains might be realized  
26 by installation of an available font or fonts. Where an automatic analysis is not  
27 possible, the web site can display forms to be filled in by a visitor. The visitor  
28 fills in a form 26 including print system configuration information of the type  
29 obtained by the step 22 of automatically determining the print system



1 configuration information. Some combination of the step 22 of a visitor filling  
2 in a form and the step 22 of automatically determining can also be used with,  
3 for example, part of the form displayed to the visitor being automatically filled  
4 in allowing the user to accept or correct any information when filling in the  
5 form in step 26. The automatic system configuration step analysis 22 may  
6 therefore interact with the form of step 26.

7           With information obtained by one or both of steps 22 and 26,  
8 software on the web host can then determine a set of fonts which may be  
9 selected to work based upon the print system configuration information.  
10 Preferably, software accesses a configuration database to determine an  
11 appropriate set of compatible fonts based upon the obtained information  
12 concerning a visitor's system configuration. Basic compatibility information  
13 can be used to recommend 28 fonts for transfer to the visitor. The  
14 recommended fonts are displayed in a suitable manner through the web  
15 browser on the client computer. Recommended fonts are chosen from an  
16 available set of print device ready fonts that are pre-tested and matched to print  
17 device models of common manufacturers and operating configurations. A  
18 more detailed recommendation might include potential performance gains that  
19 might be realized through the installation of available compatible fonts. To  
20 facilitate such a detailed recommendation, the configuration database may  
21 include configuration and performance data for multiple print device products  
22 and system configurations. Displayed recommendations can then include  
23 displaying potential estimated performance gains resulting from installation of  
24 a particular font.

25           A visitor is allowed to select only compatible fonts. The visitor  
26 selects fonts 30 for transfer. The web site then authorizes transfer 31 of a  
27 selected one or multiple ones of visitor selected fonts. Both the authorization  
28 and visitor selection may be realized in different ways. With respect to the  
29 visitor selection, selection may comprise human involvement in the context of

1 an authorization that involves a sale of a print device font and the selection of  
2 fonts from a displayed menu, for example. As one alternative, visitor selection  
3 might be part of program run as part of a print device installation, driver  
4 installation, or upgrade, where the authorization might be a code or other  
5 indicia. Various forms of authorization and font selection with varying levels  
6 of human involvement can thus be used to achieve different models of font  
7 distribution ranging from new print device installations to direct purchase. In  
8 the purchase model of font distribution through the web site on the web host  
9 16, the web site includes or links to a financial services interface and  
10 supporting software for handling electronic purchase transactions. In another  
11 model, an authorization code existing in an installed product, given as a  
12 promotion, or distributed in some other way produces an authorization for  
13 transfer. Yet another possible authorization scheme includes recognizing the  
14 visitor by some means, such as an examination of a cookie or recognition of a  
15 product serial number.

16           Once a transfer is authorized, selected authorized fonts are then  
17 transferred 32 from the web site and web host 16 to the visitor, for example the  
18 user client 10 of FIG. 1. An installation process from the web site is then  
19 initiated to install the authorized selected font or fonts on the visitor's print  
20 device 12. A check is made from web site software to determine 34 whether an  
21 automatic installation is possible. If such automatic installation is possible, the  
22 web site software then automatically installs 36 the font or fonts to the visitor's  
23 print device and automatically configures 38 the user's print system to use the  
24 newly installed fonts. Otherwise, the visitor will be prompted to run an install  
25 program 40 from the web site on the web host 16. Alternatively, the visitor can  
26 be prompted to run an install program from the visitor's client computer or the  
27 web host 16. Such interaction may be necessary, for example, if an automatic  
28 install is prevented by virus protection software. Another example involves  
29 display of a window requesting whether to trust content from the web host 16.

1 A particularly preferred font purchase business method of the  
2 invention uses features of the web site font distribution method of FIG. 2 to  
3 permit purchase of fonts, with the authorization of step 32 taking the form of a  
4 financial transaction such as a web based credit card transaction. Referring to  
5 FIG. 3, the font purchase business method of the invention attracts user visits  
6 44 to a web site maintained for font purchase and distribution. The manner of  
7 attracting visitors could be varied. Common practices for advertising, linking,  
8 and otherwise directing visitors to the web site are acceptable. These practices  
9 might involve web-based techniques or might also utilize more traditional  
10 media, mailings, package inserts or other techniques to promote the web site.

11 In FIG. 3, a preferred method for visitors to shop, view and  
12 obtain fonts is illustrated. Once a visitor visits a web site of the invention, the  
13 visitor is guided 46 through the selection of one or multiple fonts compatible  
14 with the particular visitor's print system configuration. At an appropriate time,  
15 an authorization check 48, as discussed with respect to FIG. 2, is conducted. A  
16 preferred form of authorization is purchase through a financial services  
17 interface presented by the web site. Once payment or other authorization is  
18 obtained, the web site installs 50 an authorized font or set of fonts.

19 A web site used by the invention, as generally referenced in FIG.  
20 4, is realized by software preferably including a graphical interface 52 with the  
21 capability of generating relevant user interactive interfaces and menus. A set  
22 of system analysis tools 54 serves to facilitate analysis of a visitor's print  
23 system configuration to determine font compatibility and possibly  
24 performance. As discussed above, the analysis tools preferably operate  
25 automatically, when possible, and direct any necessary amount of web site  
26 visitor input through the graphical interface where complete automatic analysis  
27 is not possible. Database tools 56 include relational database structures  
28 containing information relevant to system and font analysis, including, for  
29 example, of confirmation information concerning font types, operating system

1 type and version, print device driver type, print device brand, print device  
2 model, CPU type, CPU speed, print device driver versions, and print device  
3 models. Fonts for download and installation are stored in a font storage  
4 memory 58. The fonts in memory 58 should be pre-tested and matched to  
5 common models of print device manufacturers and operating configurations.  
6 Installation tools accomplish authorized downloads and installations of fonts  
7 from the font storage memory 58. Authorization, in a preferred embodiment,  
8 may come from financial services tools 62 which provides software to process  
9 secure payment for purchased fonts. In other cases, the financial services tools  
10 62 might also provide software to process other forms of authorization, e.g.,  
11 authorization codes and product upgrades based upon model and brand.  
12 General utilities 64 are any necessary or desirable conventional web site tools  
13 such as security tools and tools for linking to other web sites or hosts. The site  
14 may reserve some of the utilities for use by a system administrator while  
15 presenting others to visitors.

16 While various embodiments of the present invention have been  
17 shown and described, it should be understood that other modifications,  
18 substitutions and alternatives are apparent to one of ordinary skill in the art.  
19 Such modifications, substitutions and alternatives can be made without  
20 departing from the spirit and scope of the invention, which should be  
21 determined from the appended claims.

22 Various features of the invention are set forth in the appended  
23 claims.